

Application of Aerial Strip Photography to Highway Engineering

JEAN E. HITTLE

Research Engineer, Joint Highway Research, Project
Purdue University

SYNOPSIS*

This paper is a report of one of the continuing researches in pavement performance conducted by the Joint Highway Research Project of Purdue University in cooperation with the State Highway Commission of Indiana. The paper presents a method of gathering pavement performance data by the use of aerial strip photography. This method of aerial photography offers a quick, convenient method of making a permanent record of the essential features of pavement performance that heretofore could only be obtained by visual inspection in the field.

Aerial strip photography differs from the conventional aerial photography in that a continuous, uninterrupted strip photograph is produced instead of a series of individual overlapping photographs. The continuous uninterrupted exposure of photographic film (as much as 200 feet in length) is made possible through the use of a specially designed aerial camera which is adapted to low-altitude photographing at high airplane speeds. Thus, large-scale strip photographs, up to one inch equals 25 feet, covering a strip of terrain several miles in length can be obtained in a relatively short time. These features of aerial strip photography make it well suited to highway problems since the scale and coverage of the photograph can be adapted to the required detail and right-of-way width.

This method of gathering pavement performance data quickly and accurately makes a permanent record of detailed performance data, including the exact location and condition of performance. A few of the performance details that can be recorded by aerial strip photography include: blow-up patches, cracks, and corner breaks on concrete pave-

* Reprints of the complete paper, appearing in the *Highway Research Board Proceedings*, 1946, may be secured from the Joint Highway Research Project, Purdue University. Since it has been printed elsewhere, we are omitting it here in the interest of economy.

ments, and base failures and surface patches on bituminous surfaces. These features of performance are recorded with remarkable detail.

The application of strip photography to performance surveys also permits a coverage of performance information from widely separated locations and therefore enhances the study of the contributing factors of pavement performance, such as types and sources of materials and factors of traffic and design. Pavement performance data recorded on strip photographs also have use by administrative officials in evaluating their maintenance and reconstruction needs.

Aerial strip photography also has several other potential applications to highway engineering, including location surveys of a reconnaissance nature, clearing estimates, property evaluation, and assessment problems. However, the technique of gathering pavement performance data through the use of strip photography is highly significant in view of the immediate need for performance information in the planning of highway programs.